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Tracking DSpace statistics in Google Analytics using Google Tag Manager

GOALS

- Track downloads from Bronco Scholar in Google Analytics
- Track certain metadata in download statistics and where possible in page view statistics

Not only for DSpace:

- Also could be a way to track website usage/events



SOLUTION: Tracking Downloads in GTM

- LITA presentation on GA & GTM for downloads:
[https://scholarworks.iupui.edu/bitstream/handle/1805/3665/Durrant%26Coates 2013 LITAForum DataRepoWebAnalytics.pdf?sequence=1](https://scholarworks.iupui.edu/bitstream/handle/1805/3665/Durrant%26Coates%202013%20LITAForumDataRepoWebAnalytics.pdf?sequence=1)
- Less granular was OK for CPP:
<http://www.fourthsource.com/web-development/google-tag-manager-series-4-tips-tricks-setting-google-analytics-implementation-google-tag-manager-16156>
- But we still needed information about each of the downloads such as author, title, etc....



NEW SOLUTION: Custom Dimensions in GTM & GA

Plot Rows Secondary dimension: Content Type Sort Type: Default			
<input type="checkbox"/>	Event Category ?	Content Type ?	Total Events ? ↓
			29 % of Total: 82.86% (35)
<input type="checkbox"/>	1. Download	Student Research	21 (72.41%)
<input type="checkbox"/>	2. Download	Poster	6 (20.69%)
<input type="checkbox"/>	3. Download	Learning Object	2 (6.90%)



Definitions:

- Dimensions: “descriptive attribute or characteristic of an object that can be given different values”
 - Example: Content type of a download
- Metrics: “individual elements of a dimension that can be measured as a sum or ratio”

<https://support.google.com/analytics/answer/1033861?hl=en>



What you need

- A Google Analytics account
- A Google Tag Manager account
- Code snippets implemented on site



Nuts & Bolts of GTM

- Tag manager is an easy solution to update tags on your website
- Sidesteps the need to edit site code in many cases

Previously events required something like the following example code to show in GA:

```
<a href="/myfancydownload.pdf"  
onClick="_gaq.push(['_trackEvent', 'iProspect',  
'Download: PDF', 'myfancydownload']);">Download  
PDF</a>
```



Nuts & Bolts of GTM

- Three pieces of GTM:
 - Tags: for measuring whatever you want to measure, i.e. pageviews, downloads, etc.
 - Rules: In what instance the tags should be fired
 - Macros: pre-defined and custom defined macros to scenarios
 - eg. Fire tag that references a macro when a user clicks on a link that connects to a certain file type



Tags, Rules, Macros

Edit Tag

Tag Name

GA Total Downloads

Providing a descriptive name will help you identify and reference this tag.

Tag Type

Universal Analytics

Missing some settings? Many APIs (like custom search engines) have been moved server-side and can now be configured in the Google Analytics admin section.

Tracking ID

UA-18522228-6



[How to find your Tracking ID](#)

☐ Enable Display Advertising Features

Includes Demographics and Interest Reports, Remarketing with Google Analytics, and DCM Integration. Learn about [Display Advertising features](#) and [their impact on your privacy policy](#).

Track Type

Event

Event Tracking Parameters optional

Category	Download	
Action	{{documentType}}	
Label	{{linkHref}}	
Value		
Non-Interaction Hit	False	

Firing Rules

+ Add

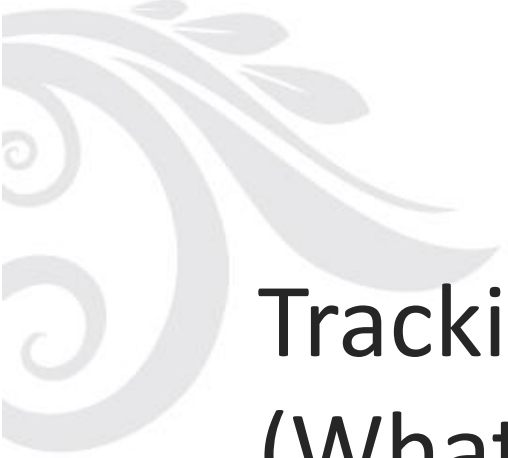
On Download Link Click



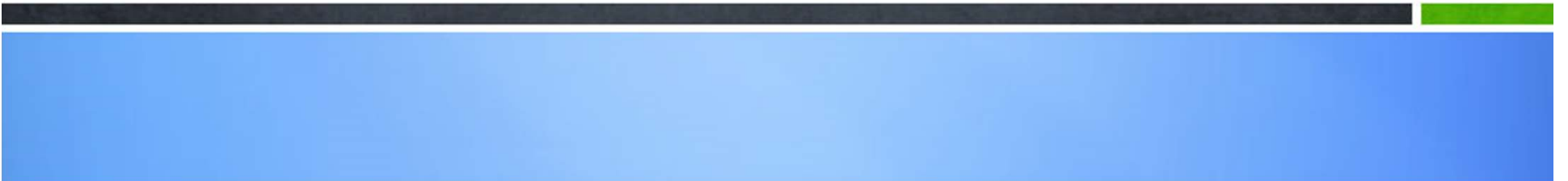
Blocking Rules

+ Add





Tracking downloads in GA/GTM (What have others done)



Tags, Rules & Macros for Tracking Downloads using GTM

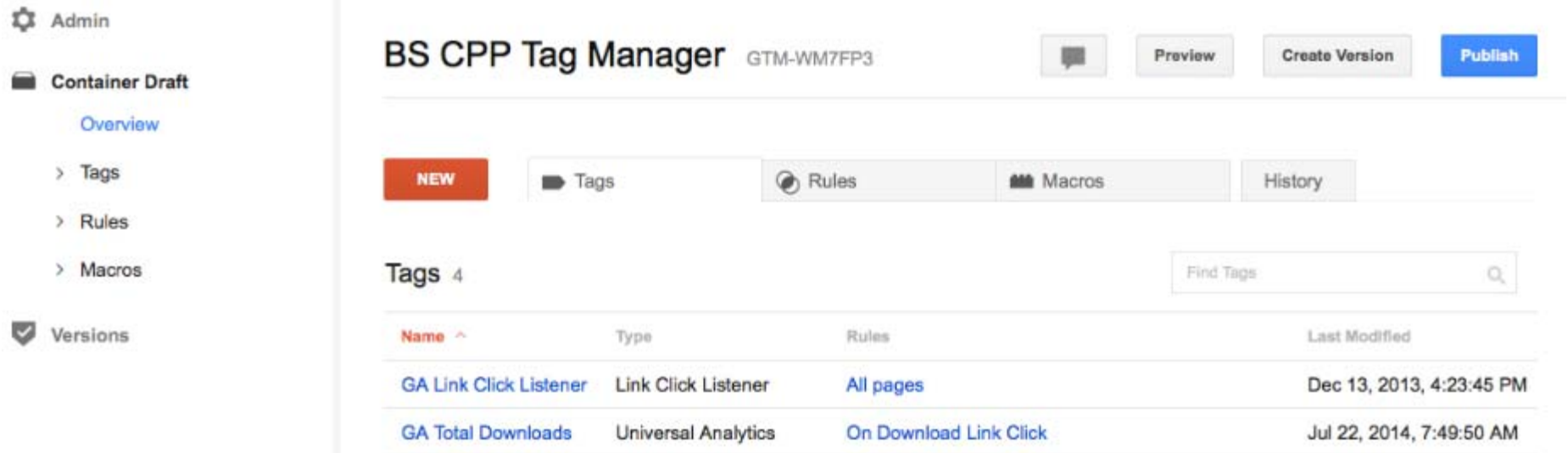
- Tags: Link Click Listener, Download
- Rules: All pages, On Download
- Macros: documentType & linkHref

Step-by-step instructions / code here:

<http://www.fourthsource.com/web-development/google-tag-manager-series-4-tips-tricks-setting-google-analytics-implementation-google-tag-manager-16156>



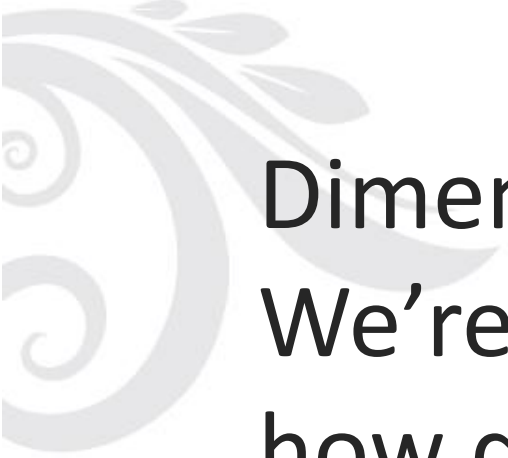
What I already had setup in GTM



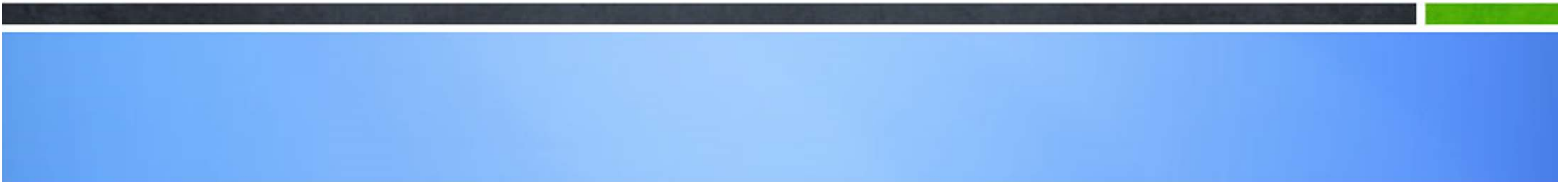
The screenshot shows the Google Tag Manager (GTM) interface for a container named "BS CPP Tag Manager" (ID: GTM-WM7FP3). The left sidebar contains navigation links: Admin, Container Draft, Overview, Tags, Rules, Macros, and Versions. The main content area displays the "Tags" tab, showing a list of 4 tags. The tags are:

Name	Type	Rules	Last Modified
GA Link Click Listener	Link Click Listener	All pages	Dec 13, 2013, 4:23:45 PM
GA Total Downloads	Universal Analytics	On Download Link Click	Jul 22, 2014, 7:49:50 AM

At the bottom of the image, there is a decorative green grass border.



Dimension Widening:
We're tracking downloads but
how do we track other
metadata?



Using Data Import functions in Google Analytics

- Google has explicit instructions on uploading CSV files to 'widen dimensions':
<http://cutroni.com/blog/2013/10/30/dimension-widening-import-data-directly-into-google-analytics/>
- Metadata dump from DSpace – file cleaned and prepped with proper column titles
- Success!

<input type="checkbox"/>	Event Category	Z Data Import Author	Total Events	Unique Events
			71 % of Total: 18.25% (389)	171 % of Total: 64.53% (285)
<input type="checkbox"/>	1. Download	Adkins, Daryl	9 (12.69%)	8 (12.70%)
<input type="checkbox"/>	2. Download	Gutierrez, David	9 (12.68%)	5 (7.64%)
<input type="checkbox"/>	3. Download	Tullig, Melissa	7 (8.66%)	7 (11.11%)
<input type="checkbox"/>	4. Download	Carpenter, Kevin Joseph	6 (8.45%)	5 (7.64%)
<input type="checkbox"/>	5. Download	Lyren, Lisa Michelle	6 (8.45%)	5 (7.64%)
<input type="checkbox"/>	6. Download	Bogdanoff-Lord, Judith J.	3 (4.23%)	3 (4.78%)

But that data has to be uploaded....

- Dimension widening isn't retroactive
- Dimensions only available for downloads/clicks AFTER the CSV is uploaded
- The CSV has to be edited before load because of quotations, extra fields, double fields.
- Very manual process
- Google mentioned APIs for Dimension Widening



Things we tried...

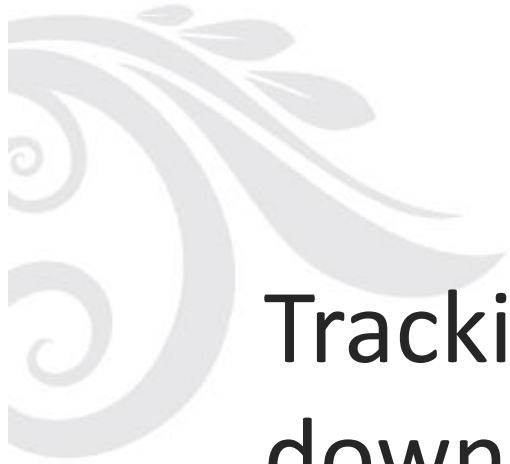
- Scraping the site and dumping the specific metadata fields we wanted into a CSV
- This worked and was a cleaner data pull
- BUT, there is still a process that needs to run to upload the CSV
- AND, it's not automatic as of the moment of upload – some files might not be tracked until this process is run, which could result in delays for tracking new items



SEO experts are using GTM to track keywords....

- SEO Reporting with Google Tag Manager:
[http://www.lunametrics.com/blog/2013/12/30/seo-reporting-google-tag-manager/#sr=g&m=o&cp=or&ct=-tmc&st=\(opu%20qspwjefe\)&ts=1406070816](http://www.lunametrics.com/blog/2013/12/30/seo-reporting-google-tag-manager/#sr=g&m=o&cp=or&ct=-tmc&st=(opu%20qspwjefe)&ts=1406070816)





Tracking dimensions on downloads in GA/GTM



STEP 1: Add Custom Dimensions to GA

- Add dimensions under Admin > Custom Definitions > Custom Dimensions
- You can have up to 20 dimensions for free
- Scope should be “Hit”
- Note the Index number

+ NEW CUSTOM DIMENSION		
Custom Dimension Name ↓	Index	Scope
Author	7	Hit
Content Type	8	Hit
Faculty Advisor	5	Hit
Title	6	Hit

STEP 2: Extra macros for download tracking

- Downloads already have to be configured in GTM (see slide 11)
- Add two macros minimum:
 - A data layer macro: holds the information for that dimension
 - A macro for tracking whatever you want to track in the metatags (one each for each element): custom javascript that collects the information from the page



Add macro: Data layer macro

Edit Macro

Macro Name

Macro Type

The value for 'Data Layer Variable Name' is set to 'value' when the following code on your website is executed:

```
dataLayer.push({'Data Layer Variable Name': 'value'})
```

Note: Data layer variables are per-page only, not per-session.

Data Layer Variable Name

Data Layer Version

Version 2: dots access nested values. Values pushed to the Data Layer with dots in the name will be interpreted as nesting values according to normal JavaScript rules. [Learn More](#)

Default Value

☐ Set default value:

To set the default value to be an empty string, check this option and leave the text field blank.



Add macro: Macro for finding metatag

Edit Macro

Macro Name

Macro Type

This macro uses the provided JavaScript function to calculate its value in the browser. Each time this macro is used from a Rule or Tag, the function will be executed and its return value will be used. Functions must return a value using the 'return' statement - otherwise, your container may behave unpredictably. Below is an example JavaScript function:

```
function() {  
    var now = new Date();  
    return now.getTime();  
}
```

Custom JavaScript

```
function getData() {  
    var x = document.getElementsByTagName("META");  
    var txt = [];  
    for (var i=0;i<x.length;i++)  
    {  
        if (x[i].getAttribute('name') == "DC.contributor") {  
            var s = x[i].getAttribute('content') + " | ";  
            txt.push(s);  
        }  
    }  
    return txt;  
}
```

Dspace metatag issues

dc.contributor.advisor	Dong, Winny
dc.contributor.advisor	Faltens, Tanya
dc.contributor.author	Baghoomian, Alenoosh
dc.contributor.author	Khosravian, Naira
dc.date.accessioned	2014-06-18T20:15:33Z
dc.date.available	2014-06-18T20:15:33Z
dc.date.issued	2013
dc.identifier.uri	http://hdl.handle.net/10211.3/121610



Dspace metatag issues

```
95 <meta name="DC.contributor" content="Dong, Winny" />
96 <meta name="DC.contributor" content="Faltens, Tanya" />
97 <meta name="DC.creator" content="Baghoomian, Alenoosh" />
98 <meta name="DC.creator" content="Khosravian, Naira" />
99 <meta name="DCTERMS.dateAccepted" content="2014-06-18T20:15:33Z" scheme="DCTERMS.W3CDTF" />
100 <meta name="DCTERMS.available" content="2014-06-18T20:15:33Z" scheme="DCTERMS.W3CDTF" />
101 <meta name="DCTERMS.issued" content="2013" scheme="DCTERMS.W3CDTF" />
102 <meta name="DC.identifier" content="http://hdl.handle.net/10211.3/121610" scheme="DCTERMS.URI" />
103 <meta name="DCTERMS.abstract" content="This report is intended to discuss the synthesis of sol g
cells and the best methods accomplished to coat the cells. The main goal behind this research is
the sol gel derived TiO2 and sensitizing the film with dye. The literature review is done to dev
solar cell, chemistry of the TiO2 film, and the efficiency measurements. In addition to the sol
synthesis of TiO2 monolith was achieved during this research. The preliminary current and volta
order to estimate the efficiency of the TiO2 films and make necessary adjustments to improve the
to the thickness measurement of the films to be able to correlate thickness of the films with th
104 <meta name="DCTERMS.extent" content="69 pg." />
105 <meta name="DC.language" content="en_US" xml:lang="en_US" scheme="DCTERMS.RFC1766" />
106 <meta name="DC.publisher" content="California State Polytechnic University, Pomona" />
107 <meta name="DC.rights" content="http://www.csupomona.edu/~broncoscholar/rightsreserved.html" sch
108 <meta name="DC.subject" content="Titanium oxide" />
109 <meta name="DC.subject" content="sol-gel" />
110 <meta name="DC.subject" content="organic photovoltaic" />
111 <meta name="DC.subject" content="solar energy" />
112 <meta name="DC.subject" content="dye sensitized" />
113 <meta name="DC.title" content="Organic Photovoltaic Solar Cell" xml:lang="en_US" />
114 <meta name="DC.type" content="Student Research" xml:lang="en_US" />
115 <meta name="DC.contributor" content="Chemical and Materials Engineering Department" />
116 <meta name="DC.relation" content="All rights reserved." />
```

STEP 3: Add the dimensions to the existing download tag

- Remember the index number you configured in GA
- Reference the macros for the individual dimensions

Track Type

Event

Event Tracking Parameters optional

Category	Download	
Action	{{documentType}}	
Label	{{linkHref}}	
Value		
Non-Interaction Hit	False	

More settings optional

- > Basic Configuration
- > Advanced Configuration
- > Cookie Configuration
- > Content Groups
- > Ecommerce Features (beta)

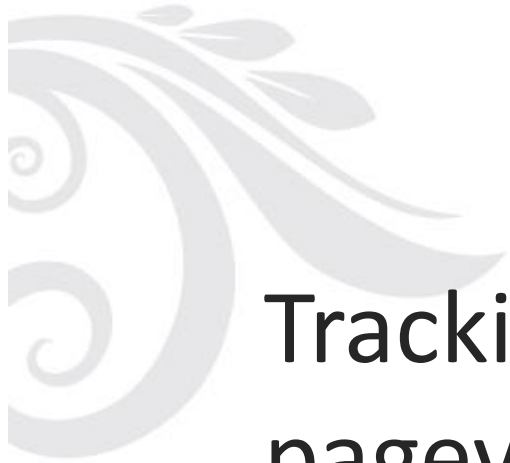
Custom Dimensions

Index		Dimension	
8		{{content type}}	
7		{{author}}	
6		{{title}}	
5		{{faculty advisor}}	

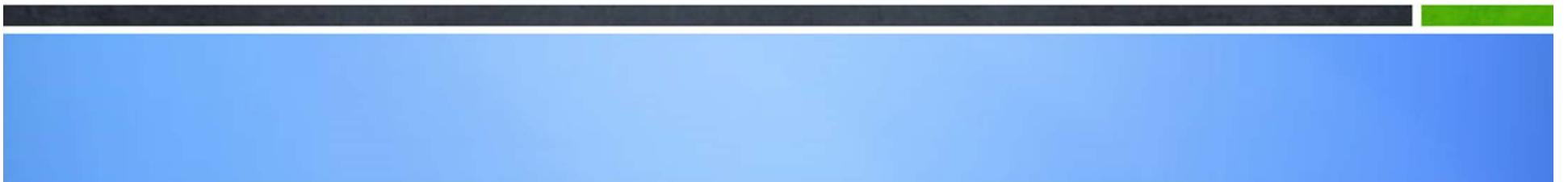
+ Add Custom Dimension

Screenshot of GA Dimensions for Downloads

<input type="checkbox"/>	Event Category ?	Title ?	Total Events ?	Un
			29 % of Total: 82.86% (35)	
<input type="checkbox"/>	1. Download	An Online Hub for Undergraduate Research: Leveraging an Institutional Repository to Engage Students & Disseminate Research	6 (20.69%)	
<input type="checkbox"/>	2. Download	Gluten-Free Pasta	4 (13.79%)	
<input type="checkbox"/>	3. Download	Aquaponics	3 (10.34%)	
<input type="checkbox"/>	4. Download	Carbon Capture And Storage Using MgO Aerogels	2 (6.90%)	
<input type="checkbox"/>	5. Download	Periodic Table of Elements	2 (6.90%)	
<input type="checkbox"/>	6. Download	Social media discourse: A case study of nonprofits' use of interactive communication	2 (6.90%)	
<input type="checkbox"/>	7. Download	"Don Jon" Movie Analysis: Applying the Sociological Imagination to Problems Portrayed Within Film	1 (3.45%)	
<input type="checkbox"/>	8. Download	Effect of Activator in Pack Aluminizing of Type 304 Stainless Steel	1 (3.45%)	
<input type="checkbox"/>	9. Download	Extraction of Minerals from Sea Water Desalination Concentrate Stream	1 (3.45%)	
<input type="checkbox"/>	10. Download	Farmworker Access to Health Care and the Impact of the Affordable Care Act on Them	1 (3.45%)	

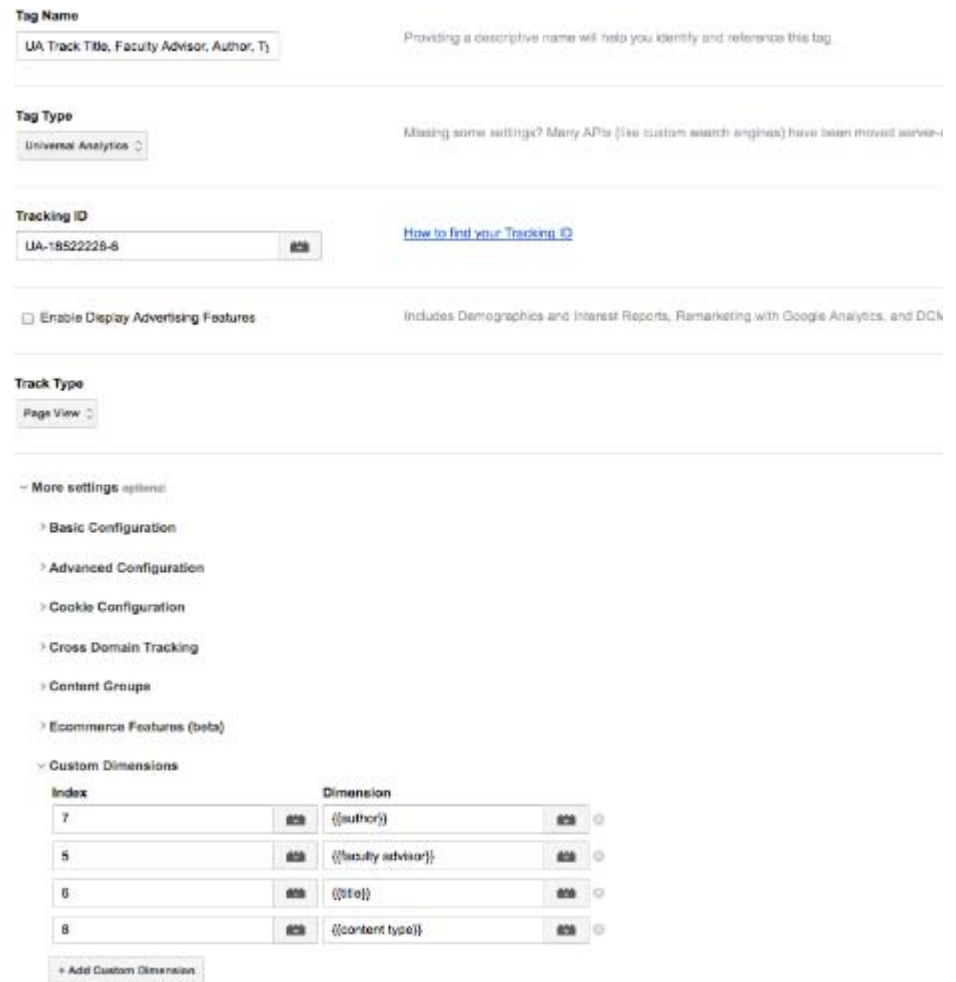


Tracking dimensions on pageviews in GA/GTM



STEP 1: Add pageview tag that references the same macros

- Add a pageview tag referring to your Universal Analytics property
- Designate the custom dimensions with the correct index number from GA (same as events configuration for downloads)









The screenshot shows the Google Tag Manager configuration interface for a new tag. The 'Tag Name' field is set to 'UA Track Title, Faculty Advisor, Author, Tj'. The 'Tag Type' is 'Universal Analytics'. The 'Tracking ID' is 'UA-18522228-8'. The 'Track Type' is 'Page View'. Under 'More settings (optional)', the 'Custom Dimensions' section is expanded, showing a table with four custom dimensions: Index 7 for {{author}}, Index 5 for {{faculty advisor}}, Index 6 for {{title}}, and Index 8 for {{content type}}. Each dimension has a corresponding 'GA ID' field.

Index	GA ID	Dimension	GA ID
7		{{author}}	
5		{{faculty advisor}}	
6		{{title}}	
8		{{content type}}	

+ Add Custom Dimension

Screenshot of Dimensions for Pageviews in GA

<input type="checkbox"/>	Page ?	Title ?	Pageviews ? ↓
			97 % of Total: 7.67% (1,264)
<input type="checkbox"/>	1. /handle/10211.3/122015	 An Online Hub for Undergraduate Research: Leveraging an Institutional Repository to Engage Students & Disseminate Research	28 (28.87%)
<input type="checkbox"/>	2. /handle/10211.3/122758	 Periodic Table of Elements	6 (6.19%)
<input type="checkbox"/>	3. /handle/10211.3/119311	 Gluten-Free Pasta	5 (5.15%)
<input type="checkbox"/>	4. /handle/10211.3/118413	 High Temperature Oxidation Behavior of Aluminized Austenitic Stainless Steels	4 (4.12%)
<input type="checkbox"/>	5. /handle/10211.3/118801	 Farmworker Access to Health Care and the Impact of the Affordable Care Act on Them	4 (4.12%)
<input type="checkbox"/>	6. /handle/10211.3/119121	 Mixed Messages: How Race and Gender Affect the Perception of Miley Cyrus's 2013 VMAs Performance	4 (4.12%)

CPP Complete setup in GTM

Tags 4

Name ^	Type	Rules
GA Link Click Listener	Link Click Listener	All pages
GA Total Downloads	Universal Analytics	On Download Link Click
Outbound Links	Universal Analytics	Outbound Link Clicks
UA Track Title, Faculty Advisor, Author, Type	Universal Analytics	All pages



Helpful Tips and Frustrations

- ALWAYS setup a catch all view in Google Analytics
- ALWAYS setup a test view in Google Analytics (or maintain a separate test property)
 - This view should have all conversions and customizations but NOT filters for admin traffic



GTM tips and tricks

- Make sure to publish your container
- Be descriptive about what you changed (and maybe limit to one change at a time)
- Events are NOT in real-time and can take 20-30 minutes to show up in GA
- Firing too many tags can affect site performance (4 max?)



Things to keep in mind about Custom Dimensions

- They will take effect and be accessible across all views in your property
- They are not retroactive



CAVEAT: Direct links are not tracked

- Not possible to track direct links from Google Search to download files
- Google Scholar links to the item record page before download, so links in Google Scholar are still tracked





Questions?

